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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/960,399

09/24/2001

Hiroshi Hashimoto

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02/03/2005

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EXAMINER

WEISS, HOWARD

ART UNIT

PAPER NUMBER

2814

DATE MAILED: 02/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/960,399

Applicant(s)

HASHIMOTO ET AL.

Examiner

Howard Weiss

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 and 18 is/are pending in the application.
- 4a) Of the above claim(s) 1-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16 and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-16 and 18 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Attorney's Docket Number: 011225

Filing Date: 9/24/01

Continuing Data: RCE established 3/5/03 and 5/18/04

Claimed Foreign Priority Date: 6/21/01 (JPX)

Applicant(s): Hashimoto et al. (Takahashi)

Examiner: Howard Weiss

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 16 and 18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claims state that the total thickness of the first and second silicon films be substantially equal to the total thickness of the third and second silicon films. This implies that the thicknesses of the first and third silicon films should be substantially equal. There is no support for this limitation in the Specification.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Initially, and with respect to Claims 16 and 18, note that a "product by process" claim is directed to the product per se, no matter how actually made. See *In re Thorpe et al.*, 227 USPQ 964 (CAFC, 1985) and the related case law cited therein which make it clear that it is the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that, as here, an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. As stated in Thorpe,

even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. *In re Brown*, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972); *In re Pilkington*, 411 F.2d 1345, 1348, 162 USPQ 145, 147 (CCPA 1969); *Buono v. Yankee Maid Dress Corp.*, 77 F.2d 274, 279, 26 USPQ 57, 61 (2d. Cir. 1935).

Note that Applicant has burden of proof in such cases as the above case law makes clear.

5. Claims 16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over admitted Prior Art Figures 8 and Gwen et al. (U.S. Patent No. 5,472,892).

Admitted Prior Art Figures 8 shows most aspects of the instant invention including:

- a substrate **11** with a non-volatile memory **A** including a floating gate **13** with a control gate **16** formed on said floating gate via an insulation film **14**

- first to third MOS transistors **B, C, D** with gates insulation films **12B, 12C, 12D** of increasing thicknesses and gate electrodes **16B, 16C, 16D** of substantially identical height and made of silicon film

Admitted Prior Art Figures 8 do not show the control constructed of two silicon films and a silicide film formed directly on the silicon films of the first to third MOS transistors' gate electrodes. Gwen et al. teach (e.g. Figure 3I) to form control gate (in cell array region) of two silicon films **206, 208** stacked upon each other and a silicide film **209** directly formed on said silicon film **208** of the peripheral transistors to decrease the number of processing steps (Column 4 Lines 45 to 50) and for the gate electrodes of storage cell transistors and transistors in a peripheral circuit region to have the same height (Column 2 Lines 49 to 55). It would have been obvious to a person of ordinary skill in the art at the time of invention to form control gates of two silicon films stacked upon each other and a silicide film directly formed on said silicon film of the peripheral transistors as taught by Gwen et al. in the device of the Admitted Prior Art Figures 8 to decrease the number of processing steps and for the gate electrodes of storage cell transistors and transistors in a peripheral circuit region to have the same height.

As to the grounds of rejection under "product by process", how the gate electrodes are formed (either from the same silicon films or from different films) or in what order each layer is deposited relates to intermediate process steps and does not affect the final device structure. See MPEP § 2113 which discusses the handling of "product by process" claims.

Response to Arguments

6. The Applicants' arguments filed 7/31/03 have been fully considered but they are not persuasive. In reference to the transistors being the same height, Gwen et al. state that one of the purposes of their invention is for the gate electrodes (both in the storage cells and in the peripheral transistors) to be of the same height (Column 2

Lines 49 to 55). The Applicants are correct that the boundaries of the polysilicon films are observable. However, the order in which these films are deposited are process limitations. In view of these reasons and those set forth in the present office action, the rejections of the stated claims stand.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

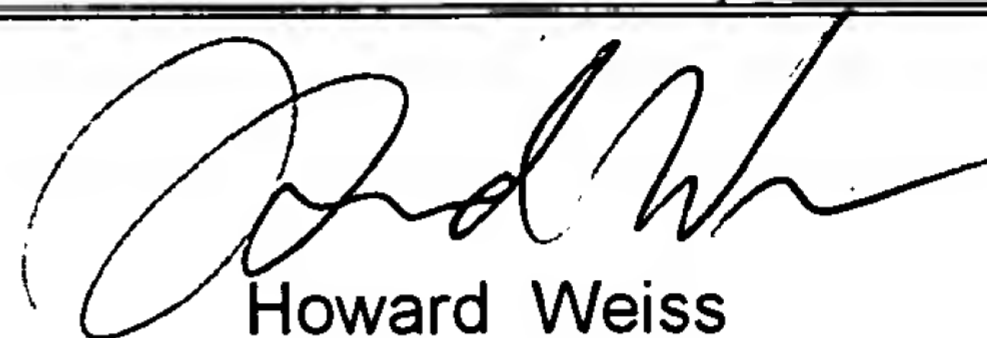
8. Papers related to this application may be submitted directly to Art Unit 2814 by facsimile transmission. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2814 Fax Center number is **(703) 872-9306**. The Art Unit 2814 Fax Center is to be used only for papers related to Art Unit 2814 applications.
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Howard Weiss at **(571) 272-1720** and between the hours of 8:00 AM to 4:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via **Howard.Weiss@uspto.gov**.

Art Unit: 2814

10. The following list is the Examiner's field of search for the present Office Action:

Field of Search	Date
U.S. Class / Subclass(es): 257/321,392	thru 2/1/05
Other Documentation: none	
Electronic Database(s): EAST	thru 2/1/05

HW/hw
1 February 2005



Howard Weiss
Primary Examiner
Art Unit 2814